

## 1. INTRODUCTION

South Carolina's coastal zone includes a variety of sensitive habitats that serve as critical nursery areas for most of the state's commercial and recreational fishery resources. The annual economic impact of the state's saltwater recreational and commercial fisheries alone exceeds 650 million dollars (SCDNR, unpublished). Additionally, South Carolina's coastal zone is a major attraction to both the citizens of the state and out-of-state visitors, who contribute more than 14 billion dollars in travel and tourism activity to the state annually (World Travel and Tourism Council, 2001). As with most coastal states, population growth in the coastal counties has been rapidly increasing in recent years, with more than 1.04 million people estimated to be living in the eight coastal counties in 2004 (SC Budget and Control Board, 2005). This number is expected to increase another 30% by 2025. The associated development of housing, roads, and commercial and industrial infrastructure, combined with increased recreational utilization of our coastal waters, will result in an escalating potential for serious impacts to South Carolina's coastal habitats.

The South Carolina Estuarine and Coastal Assessment Program (SCECAP) was established in 1999 to begin evaluating the overall health of the state's estuarine habitats on a periodic basis using a combination of water quality, sediment quality, and biotic condition measures. This collaborative program involves the Department of Natural Resources (SCDNR) and the Department of Health and Environmental Control (SCDHEC) as the two lead state agencies, as well as the National Atmospheric and Oceanic Administration (NOAA) laboratories located in Charleston (Center for Coastal Environmental Health and Biomolecular Research and the Hollings Marine Laboratory) and the U.S. Environmental Protection Agency (USEPA) Gulf Ecology Division in Gulf Breeze, FL. SCECAP represents an expansion of ongoing monitoring programs being conducted by both the state and federal agencies and ranks among the first in the country to apply a comprehensive, ecosystem-based assessment approach for evaluating coastal habitat condition. The USEPA has implemented a similar approach at the national level through its National Coastal Assessment Program (NCA) and has used those data

in collaboration with other federal agencies and data sources to prepare two National Coastal Condition Reports (USEPA, 2001, 2004). However, many of the parameters and thresholds used for the national report are not necessarily appropriate for South Carolina, and the program is providing regional assessments that are not specific to any one state. Additionally, the SCECAP initiative collects additional data parameters that are not collected by NCA.

There are several specific, yet critical, attributes of the SCECAP initiative that set it apart from other ongoing monitoring programs being conducted in South Carolina by SCDHEC (primarily for water quality) and SCDNR (primarily for fishery stock assessments). These include: (1) sampling sites throughout the coastal zone using a random, probability-based approach that complements both agencies' ongoing programs involving fixed station monitoring networks, (2) using integrated measures of environmental and biological condition that provide a more complete evaluation of overall habitat quality, and (3) monitoring tidal creek habitats in addition to the larger open water bodies that have been sampled traditionally by both agencies. Component 3 is of particular importance since tidal creek habitats serve as important nursery areas for most of the state's economically valuable species and often represent the first point of entry for runoff from upland areas. Thus, tidal creek systems can provide an early indication of anthropogenic stress (Holland *et al.*, 2004; Sanger *et al.*, 1999a, b; Lerberg *et al.*, 2000; Van Dolah *et al.*, 2000; 2002a, b; 2004a).

This technical report is the third in a series of reports describing the status of South Carolina's estuarine habitats. Findings from the 2003-2004 sampling period are described and compared with previous surveys conducted in 1999-2000 and 2001-2002 (Van Dolah *et al.*, 2002a, 2004a). The 2003-2004 survey period represents the first survey conducted since the inception of the program that encompasses more typical rainfall patterns as compared to the drought conditions experienced from 1999-2002.